



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/826,183	04/04/2001	Ruggero Maria Santilli	3293.004A	9175
24040	7590	01/27/2005	EXAMINER	
DENNIS G. LAPOINTE LAPOINTE LAW GROUP, PL PO BOX 1294 TARPON SPRINGS, FL 34688-1294			TOOMER, CEPHIA D	
		ART UNIT		PAPER NUMBER
				1714

DATE MAILED: 01/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/826,183	SANTILLI, RUGGERO MARIA
	Examiner	Art Unit
	Cephia D. Toomer	1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 21 October 2004.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-11,13-25,27-50,52-62,64,66-89,91,95-98 and 100-111 is/are pending in the application.

4a) Of the above claim(s) 102-111 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-11,13-25,27-50,52-62,64,66-89,91,95-98,100 and 101 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. _____.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____.

DETAILED ACTION

This Office action is in response to the amendment filed October 21,2004 in which claims 1, 3, 5-7, 9-11, 13-18, 21, 27, 29, 30, 33, 35-37, 39-45, 48, 52, 56, 58-60, 64, 66-68, 71, 77, 79, 83, 85-87, 89, 91, 95 and 98 were amended and claims 102-111 were withdrawn.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-11, 13-25, 27-50, 52-62, 64, 66-89, 91, 95-98 and 100-101 are rejected under 35 U.S.C. 101 because the disclosed invention is inoperative and therefore lacks utility. All of the instant claims are drawn to a chemical composition comprising a substantially pure population of magnecular clusters of one of a molecule, a dimer and an atom and combinations thereof in combination with one of another molecule, dimer or an atom, and any combination thereof. At page 3, last paragraph through page 4, lines 1-17, applicant states:

The exposure of a gas at atmospheric pressure to an electric arc may also create magnecules. They are generated, however, in such small numbers as to be undetectable. Accordingly, these magnecules have no industrial or consumer value such as those

that may be created by the arc disclosed in an unrelated invention described in U.S. Patent No. 5,487,874 to Gibboney Jr. Therefore, the exposure of a molecular species electric arc leaves the original molecular species mostly unchanged in the sense that the species remains an essentially pure population of conventional molecules with only traces of magnecules. Accordingly, only when a gas is forced to pass at very high pressure through a restricted area surrounding an electric arc of a PlasmaArcFlow Reactor of the present invention can the chemical species of magnecules be produced in which a chemical species of molecules is turned into an essentially pure population of magnecules. Therefore, a well sustained pressure of about 100,000 psi is necessary, as well as other requirements discussed below, to achieve the formation of an essentially pure population of magnecules, such as that created in the PlasmaArcFlow Reactor. This sustained high pressure and other requirements, however, are not taught, disclosed or suggested by Gibboney.

It is clear from known principles of physics and chemistry that the instant compositions cannot exist according to conventional theory. No assertions of substantially pure population of magnecular clusters have been recognized or verified by the scientific community.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-11, 13-25, 27-50, 52-62, 64, 66-89, 91, 95-98 and 100-101 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification does not enable one of ordinary skill in the art to make a substantially pure population of magnecular clusters, in that it would require undue experimentation to do so.

Factors to be considered in determining whether a disclosure would require undue experimentation include, (1) the breadth of the claims, (2) the nature of the invention, (3) the state of the prior art, (4) the level of one of ordinary skill, (5) the level of predictability in the art, (6) the amount of direction provided by the inventor, (7) the existence of working examples and (8) the quantity of experimentation needed to make or use the invention based on the content of the disclosure. In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

(1) the breadth of the claims

Since all of the claims encompass a substantially pure population of magnecular clusters, and it has been shown hereinbefore with respect to the rejection under 35

U.S.C. 101 for inoperability that such cannot exist, the claims are not enabled. The question of whether a specification provides an enabling disclosure under 35 U.S.C. §112, first paragraph, and whether an application satisfies the utility requirement of §101 are closely related. Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1358, 52 USPQ2d 1029, 1034 (Fed. Cir. 1999). To satisfy the enablement requirement of 112, first paragraph, a patent application must adequately disclose the claimed invention so as to enable a person skilled in the art to practice the invention at the time the application was filed without undue experimentation. Enzo Biochem, Inc. v. Calgene, Inc., 188 F.3d 1362, 1371-72, 52 USPQ2d 1129, 1136 (Fed. Cir. 1999). The utility requirement of §101 mandates that the invention be operable to achieve useful results. Brooktree Corp v. Advanced Micro Devices, Inc., 977 F.2d 1555, 1571, 24 USPQ2d 1401, 1412 (Fed. Cir. 1992). Thus, if the claims in an application fail to meet the utility requirement because the invention is inoperative, they also fail to meet the enablement requirement because a person skill in the art cannot practice the invention. Process Control, 190 F.3d at 1358, 52 USPQ2d at 1034.

(2) the nature of the invention

As stated above, the vast majority of the scientific community has held the belief that a substantially pure population of magnecular clusters is not attainable. Accordingly, the nature of the invention is such that it would be startling if it were operative, thus requiring greater detail and guidance than that found in the instant specification to provide enablement.

(3) the state of the prior art

There appears to be no prior art showing materials that qualify as a substantially pure population of magnecular clusters.

(4) the level of one of ordinary skill

Since even the most highly skilled physicists and chemists would agree that according to conventional theory, the instant invention cannot be produced, the threshold of enablement is not met on pages 1-98 of the instant specification.

(5) the level of predictability in the art

It would be most unpredictable that a substantially pure population of magnecular clusters have been produced, by the instant methods or otherwise. See the reasoning presented hereinbefore with respect to the rejection under 35 U.S.C. 101 for inoperability.

(6) the amount of direction provided by the inventor

It is the examiner's position that applicant has not provided sufficient guidance throughout the specification to enable one of ordinary skill in the art to make and use the instant invention. The instant specification is devoid of direction and guidance necessary to enable the skilled artisan to identify or produce a substantially pure population of magnecular clusters. While applicant generally alludes to "pure magnecular clusters", applicant has not set forth any positive or specific process steps which would allow one of ordinary skill to produce these magnecular clusters. It is the examiner's position that long and tedious trial and error would await any person skilled in the art reading applicant's specification and attempting to detect or produce a substantially pure population of magnecular clusters.

(7) the existence of working examples and (8) the quantity of experimentation needed to make or use the invention

The quantum of proof required to establish enablement is inextricably linked with the degree of unpredictability of the relevant art.

The art of molecular clusters is an extremely unpredictable one. Small changes can result in dramatic changes in or loss of properties. The amount and type of examples necessary to support broad claims increases as the predictability of the art decreases. See In re Fisher, 166 USPQ 18, 24 and In re Angstadt and Griffen, 190 USPQ 214, 218. Claims broad enough to cover a large number of compositions that do not exhibit the desired properties fail to satisfy the requirements of 35 USC 112. See In re Cook, 169 USPQ 298, 302 and Cosden Oil v. American Hoechst, 214 USPQ 244, 262. Merely reciting a desired result does not overcome this failure. In re Corkill, 226 USPQ 1005, 1009.

It should be noted that at the time the invention was made, the theoretical mechanism of magnecular clusters was not well understood. (This is still the case today). Accordingly, there appears to be little factual or theoretical basis for extending the scope of the claims much beyond the proportions and materials actually demonstrated in Gibboney (US 5,487,874), wherein Applicant alleges that magnecular clusters are formed but are undetectable. A "patent is not a hunting license. It is not a reward for the search, but a reward for its successful conclusion", Brenner v. Manson, 383 US 519, 148 USPQ 689.

Art Unit: 1714

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-11, 13-50, 52-62, 64, 66-89, 91, 95-98 and 100-101 are rejected under 35 U.S.C. 112, second paragraph, for the reasons of record, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant argues that ALL kind of molecules, dimers and atoms can form a magnecular clusters without any restriction. Applicant argues that the role of the claims is not to enable one to reproduce the invention but rather to define the metes and bounds of the invention.

The examiner respectfully disagrees. Claims that are rejected under 35 USC 112, second paragraph are evaluated in the context of whether the claim is definite, i.e., whether the scope of the claim is clear to a hypothetical person possessing the ordinary level of skill in the art. The scope of the claims reads on every molecule, dimer and atom in existence. Applicant recites that the peak in the mass spec of these magnecular clusters are unidentifiable. Are all unidentifiable peaks in a mass spec magnecular clusters?

Response to Arguments

6. Applicant's arguments filed have been fully considered but they are not persuasive.

Applicant argues that he is not changing chemistry but showing that a new species exist, applicant's "magnecular clusters."

The examiner respectfully disagrees. It does appear that applicant is alleging that applicant's magnecular cluster goes against all conventional principles of chemistry and physics since they have not been recognized or verified by the scientific community are unidentifiable.

Applicant argues that the 132 declaration, Mr. Richardson and Mr. Toups each independently verify the existence of applicant's magnecular clusters.

The examiner respectfully disagrees. Mr. Richardson was or is employed by Mr. Toups and under Mr. Toups supervision. Also, Mr. Toups is or was Dr. Santilli's employer. Therefore, the Declaration is based on information derived from sources that may not be sufficiently independent.

Applicant states that Mr. Dee of National Technical Systems Lab has observed evidence of the new species and that the examiner has ignored this data (Figs 7-25).

In the letter dated June 23, 1998, Mr. Dee refers to the sample as AquaFuel™. The examiner has no way of knowing that AquaFuel™ and applicant's magnecular clusters are the same.

Mr. Dee compared the sample given to him to 138,000 chemical compounds and states that his equipment lacks the technical ability to identify the components of

AqualFuel™. There is no objective evidence that the above comparison is complete or exhaustive. Mr. Dee refers Applicant to another laboratory, Alta Analytical Lab, that has more sophisticated mass spectral equipment. The data presented in Figs 7-25 are of AqualFuel™, Applicant is not claiming an aqueous composition nor an aqueous fuel. The demonstration submitted in the video and on the website have been considered but are not deemed to be persuasive. Applicant has not shown that the fuel used in these cars is the claimed composition.

Applicant argues that the examiner has ignored the experimental evidence of the instant application, i.e., unidentifiable peaks in the mass spec, lack of IR signature for gases and lack of UV signature for liquids. Applicant argues that these features prohibit applicant's clusters from being molecules.

Applicant has pointed to spectroscopic data which allegedly shows evidence for applicant's "magnecular clusters". Applicant's basis is that such clusters lack conventional infrared, UV or "other signature." On the one hand since applicant has ruled out the use of conventional experiments to detect applicant's magnecular clusters, how would one of ordinary skill in the art know what techniques to use without undue experimentation? On the other hand, it appears that applicant has used conventional techniques such as MS to identify his magnecules. This is clearly confusing. As best understood, it is applicant's position that chemical species which do not show such signatures when subjected to characterization by conventional spectroscopic techniques must lack conventionally established modes of chemical bonding. Applicant believes that such species are held together by new forces ("new bonds not based on

valence" in Kadeisvili's words, see page 2, line 6 in the preprinted titled "Experimental Evidence On A New Heavy Species Of Hydrogen With Santilli Magneclular Structure"). But applicant's arguments ignore a very crucial point that decades of scientific research involving the study of innumerable chemical compounds do provide a satisfactory explanation for the stability of compounds based on one or more types of bonds such as ionic, polar, covalent, dipolar, van der Waals and/or the hydrogen bond. Indeed, it is incredible that decades of established scientific research has overlooked an alleged new type of bond or force involving the simplest of all elements, i.e., the hydrogen atom.

Applicant argues that the specification does enable one of ordinary skill in the art to make the claimed invention.

Applicant's claims involve the terminology of "magneclular cluster." Because this is applicant's own lexicography, it is necessary to consult applicant's specification to properly understand its scope. It appears that the unique source in terms of which these clusters can be understood is applicant's own theory. Although, it is not necessary for applicant to set forth a mechanism underlying his invention, in this instance the claims involve terminology that makes it necessary to go into applicant's theory to understand it. Given that the applicant has described his clusters in terms of his own new theory based on a "search for basically new bonds not based on valence" (see, e.g., page 2, line 6 in the Preprint titled "Experimental Evidence On A New Heavy Species Of Hydrogen With Santilli Magneclular Structure by Kadeisvili who, it is noted, works in the applicant's Institute for Basis Research), it is the examiner's position that Applicant's disclosure would not have been understandable to one of ordinary skill in

the art based on conventionally accepted and recognized principles of modern science. Therefore, it is proper to state that the claims lack enablement.

Indeed since the mass spec peaks are unidentifiable and the composition lacks IR and UV signatures, it appears that applicant's theory based on new chemistry and new math, as pointed out by Dr. Santilli in the video submitted by applicant and the Kluwer review submitted by J.V. Kadeisvili is the only unique source providing identification for the existence of applicant's magnecular clusters.

Applicant argues that the examiner's statement that magnecules have not been recognized or verified by the scientific community is vacuous. Applicant states that the publication of his work by Kluwer Academic Publishers is an indication that the scientific community recognizes and verifies his invention.

With respect to Applicant's arguments regarding being recognized by Kluwer Publishers, it is the examiner's understanding that publishers do not verify the scientific data of submitted material to be published, but merely ensure that the paper meets certain requirements, e.g., the work must be original and contain substantial unpublished material and the paper must be presented with sufficient details. Furthermore, it should be noted that the paper applicant submitted to the publisher is not in the same form as the present invention and does not contain the exact same information.

Applicant argues that the official reviews released by Kluwer prove the acceptance of Applicant's invention.

The reviews merely acknowledge Applicant's theory. They do not verify that the invention is novel and useful. A majority of the reviewers have at one time worked with applicant on various projects. It should be noted that none of these scientists has admittedly reproduced Applicant's invention. Furthermore, a search in Chemical Abstracts reveals that all recitations of Applicant's "magnecules" are in the works of collaborators of Dr. Santilli. A copy of the search report has been made of record in this application.

Applicant argues that the specification does enable one to make the substantially pure population of magnecules given that "Various embodiments of the equipment used for the production of magnecular clusters is described in extreme details in several US patents already granted to Applicant and to Richardson."

The claims of these patents do not teach how to make applicant's magnecular clusters. US 6,673,32 is directed to an apparatus for the production of a clean burning combustible gas. US 6,663,752 is directed to the production of a clean burning liquid fuel plus heat from a liquid feedstock. It is clear that the patents of Richardson do not teach how to make magnecular clusters. It is the examiner's position that applicant's disclosure would not have been understandable to one of ordinary skill in the art based on conventionally accepted principles of modern science. Therefore, the examiner maintains that applicant does not teach how to make applicant's magnecular clusters and that it is proper to state that the claims lack enablement. Furthermore, it is noted that conventional methods wherein an aqueous or biomass feedstock is subjected to an electric arc between a pair of carbon-based electrodes produces a mixture of carbon

monoxide, carbon dioxide and hydrogen, all of which are conventional gases. See for instance, Dammann (US 5,159,900) and Richardson (US 5,435,274). Dammann and Richardson each show that nothing unexpected or special is produced.

If Applicant wishes to argue that the apparatus of the prior art and that of the present application are different and it is applicant's apparatus that makes this difference, then the examiner must point out that the apparatus is not at issue here but chemical species produced from conventional chemical compounds. While applicant uses his own apparatus to produce his own "magnecular clusters", it is the examiner's position that the feedstock medium of the prior art and Applicant's medium are the same and the skilled artisan recognizes that subjecting a conventional feedstock through an electric arc between a pair of carbon-based electrodes results in known products that contain carbon, hydrogen and oxygen atoms.

Applicant argues that the publication of one of his papers in the International Journal of Hydrogen energy proves that Applicant's theory is accepted by the scientific community.

The examiner respectfully disagrees. Scientific journals publish articles for various reasons. The most prominent reason is to keep the scientific community abreast of what is going on in their respective fields. The mere fact that Applicant's paper appears in this journal in no way validates Applicant's invention. Also it should be pointed out that in this article it is further observed that applicant's experimental data is undermined by applicant's observation that during experiments "what in reality has happened is that *the analytic equipment itself has altered the species to be tested*, by

turning individual C and O atoms, single valence bonds C-O and double valence bonds C=O present in the magnecules into the conventional triple valence bonds C≡O detected by the instrument" (italics are applicant's own; see page 184, left hand column, in applicant's publication titled "The Novel Magnecular Species of Hydrogen and Oxygen With Increased Specific Weight and Energy Content" by Santilli in the International Journal of Hydrogen Energy 28 (2003) 177-196.

The above quotation from applicant's own publication suggests that applicant is arguing that "magnecules" (i.e., magnecular clusters) existed before one looked for them. And then during the identification process, the equipment used to look for them somehow altered the applicant's magnecules to turn into conventional molecules. Such logic is understandably unconvincing. It fails to provide clear and convincing evidence of applicant's claim to have experimental proof for applicant's clusters.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art is cited for teaching compositions prepared by subjecting feedstock to an electric arc.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cephia D. Toomer whose telephone number is 571-272-1126. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Cephia D. Toomer
Primary Examiner
Art Unit 1714

09826183\011005